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TITLE: SHEET ATTRACTION-CONVEYING DEVICE AND RECORDING DEVICE

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ABSTRACT:

PROBLEM TO BE SOLVED: To protect the entire power-fed portion and secure a stable power feed by covering the entire side end of a conveying belt with a protecting member placed in contact/adjacent manners with/to the conveying belt, in a conveying device comprising the conveying belt having an attraction force generating means for electrostatic attraction of a recorded medium.

SOLUTION: A paper feeding sheet fed from a feeding portion is electrostatically attracted and conveyed by a conveying belt 15, and recording is performed by a recording portion 5 arranged over this conveying portion. The conveying belt 15 has an attraction force generating means 31, and the central part of the attraction force generating means 31 is constituted as an attraction force generating region. The both ends of the conveying belt 15 are provided with exposed power-fed portions 32a, 33a having a size longer than the width of an electrode plate 32 and an earth plate 33, and a power feed can be performed via power feeding brushes 34. Protecting members 43 with C-shaped cross section are mounted on support members 42 for supporting these power feeding brushes 34 so as to cover the power-fed portions 32a, 33a to secure reliability of the power feed.

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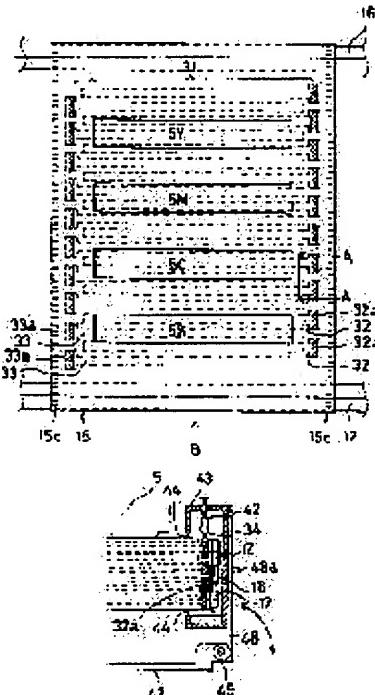
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## (54) SHEET ATTRACTION-CONVEYING DEVICE AND RECORDING DEVICE

## (57) Abstract:

PROBLEM TO BE SOLVED: To protect the entire power-fed portion and secure a stable power feed by covering the entire side end of a conveying belt with a protecting member placed in contact/adjacent manners with/to the conveying belt, in a conveying device comprising the conveying belt having an attraction force generating means for electrostatic attraction of a recorded medium.

SOLUTION: A paper feeding sheet fed from a feeding portion is electrostatically attracted and conveyed by a conveying belt 15, and recording is performed by a recording portion 5 arranged over this conveying portion. The conveying belt 15 has an attraction force generating means 31, and the central part of the attraction force generating means 31 is constituted as an attraction force generating region. The both ends of the conveying belt 15 are provided with exposed power-fed portions 32a, 33a having a size longer than the width of an electrode plate 32 and an earth plate 33, and a power feed can be performed via power feeding brushes 34. Protecting members 43 with C-shaped cross section are mounted on support members 42 for supporting these power feeding brushes 34 so as to cover the power-fed portions 32a, 33a to secure reliability of the power feed.



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CLAIMS

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[Claim(s)]

[Claim 1] The conveyance belt which prepared the section to which it has the adsorption-power generating means which has arranged the electrode in order to carry out electrostatic adsorption of the record medium-ed, and the center section of this adsorption-power generating means is made into an adsorption-power generating field, and electric power is supplied by the move direction side edge section supplied electric power. The electric supply means for supplying electric power to this section supplied electric power. It is the sheet adsorption transport device equipped with the above, and is characterized by covering the side edge section whole region of the aforementioned conveyance belt so that the aforementioned section supplied electric power may have predetermined space around by the aforementioned conveyance belt and the protection member installed by contacting or approaching and it may be isolated with the exterior.

[Claim 2] The aforementioned section supplied electric power is a sheet adsorption transport device according to claim 1 characterized by being prepared in the move direction both sides or one side of the aforementioned conveyance belt, and establishing the aforementioned electric supply means to the section of each above supplied electric power.

[Claim 3] The aforementioned protection member is a sheet adsorption transport device according to claim 1 or 2 characterized by having the closure member which contacts the aforementioned conveyance belt and is prepared in the non-adsorbing field of the record medium-ed between the aforementioned adsorption-power generating field and the aforementioned section supplied electric power.

[Claim 4] The aforementioned electric supply means is a sheet adsorption transport device according to claim 1 or 2 characterized by being installed in the aforementioned protection member.

[Claim 5] the aforementioned protection -- the sheet adsorption transport device according to claim 1 or 2 characterized by installing the cleaning member which contacts this conveyance belt at the move direction upstream of the aforementioned conveyance belt, and cleans the aforementioned section supplied electric power rather than the aforementioned electric supply means of a member

[Claim 6] the aforementioned protection -- the sheet adsorption transport device according to claim 1 or 2 characterized by preparing a friction reduction means in the aforementioned electric supply means and the position which counters through the aforementioned conveyance belt of a member

[Claim 7] The aforementioned protection member is a sheet adsorption transport device according to claim 1 or 2 characterized by being constituted possible [ attachment and detachment ] to the aforementioned conveyance belt.

[Claim 8] It is the sheet adsorption transport device according to claim 7 characterized by constituting so that the aforementioned protection member may be estranged from the aforementioned conveyance belt, when the aforementioned protection member is installed in opening and closing or the jam

processing door which carries out desorption at the time of jam processing of a record medium-ed and it is opened or desorbed from this jam processing door.

[Claim 9] The aforementioned adsorption-power generating means prepared in the aforementioned conveyance belt is a sheet adsorption transport device according to claim 1 characterized by having the ctenidium-like electrode which made each gear tooth with which potential which is arranged by turns and is different is impressed in the move direction of the aforementioned conveyance belt, and the direction which intersects perpendicularly become independent.

[Claim 10] The aforementioned conveyance belt is a sheet adsorption transport device according to claim 1 characterized by the thing which have a drive roller and a follower roller, and which it was passed by anchoring at the ends through with the conveyance roller of a lot at least, and was laid with at least one pressurization roller.

[Claim 11] The recording device characterized by constituting so that it may have the sheet adsorption transport device of a publication in any 1 term of claims 1-10, a record means to have \*\*\*\*\* which breathes out the flight drop of ink in the aforementioned conveyance belt and the position which counters may be arranged and an adsorption power may be generated to a record medium-ed in the record section of the aforementioned record means.

[Claim 12] The aforementioned record means is a recording device according to claim 11 characterized by being arranged so that the aforementioned delivery may be located in a line in the direction which are arranged in the move direction of the aforementioned conveyance belt, and intersects perpendicularly with the move direction of this conveyance belt. [ two or more ]

[Claim 13] The aforementioned record means is a recording device according to claim 11 characterized by being the recording head of the full line type with which full [ of the record section of a record medium-ed ] was covered, and two or more record elements were arranged.

[Claim 14] The aforementioned record means is a recording device according to claim 11 characterized by making ink breathe out from a delivery with the heat energy impressed with an electric thermal-conversion object using film boiling produced in ink.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the sheet adsorption transport device which carries out electrostatic adsorption and conveys the record medium-ed with which the recording device which equips the sheet adsorption transport device and this which used the conveyance belt is started, especially a picture is recorded by the recording head in an ink-jet recording device.

[0002]

[Description of the Prior Art] Generally an ink-jet recording device is what records on record media-ed, such as paper and synthetic resin, by breathing out ink from a recording head.

Miniaturization of a recording head is easy and can record a high definition picture at high speed. A running cost is cheap, and since it is a non impact method, there is little noise. and it is easy to record a color picture using multicolor ink -- etc. -- it has the advantage and much more improvement in the speed of record is possible for especially the full line type equipment that used the recording head of the line type which arranged many deliveries crosswise [ of a record medium-ed ]

[0003] However, since the distance from the recording head of the best style side position to the recording head of the lowest style side position becomes long in full line type equipment, the relief of a record medium-ed occurs in a record section, and since a record picture is confused or it also becomes the cause of a jam etc., it is necessary to energize below so that a record medium-ed may not come floating. A conductive electrode is prepared as the energization means, a charge is given to this, an electrostatic force is generated, and the method of making the record medium-ed which consists of a dielectric adsorb is learned.

[0004] In such an ink-jet recording device, by the electrostatic adsorption member prepared in the conveyance belt in the record section of a recording head, it sticks to this conveyance belt upper surface, and the record medium-ed with which it was fed by the feeding device is held on it, and it is conveyed with a conveyance belt, being recorded by the recording head.

[0005] An example of the conventional ink-jet recording device is explained using drawing 11 - drawing 14. In drawing 11, record sheet P which is a record medium-ed is loaded into the feed section 51, and it is fed with it one sheet at a time from the upper part with the feed roller 52.

[0006] Adsorption pinching is carried out on the conveyance belt 56 which has an adsorption-power generating means 55 to mention later by the follower roller 53 and the pinch roller 54, and record sheet P with which it was fed is conveyed to the record starting position on a platen 58 with the conveyance belt 56 conveyed with the drive roller 57 which drives a stepping motor as a driving source.

[0007] The conveyance belt 56 is laid with the drive roller 57, the follower roller 53, and the pressure roller 59, the pressure roller 59 was formed in the other end of the arm 60 with which the end was

prepared in the platen 58 at the rockable possible [ rotation ], and tension is given to the conveyance belt 56 by this arm 60 being pressed with a spring 61.

[0008] 62 is the recording head of the full line type with which full [ of the record section of record sheet P ] was covered, and two or more record elements were arranged, it is arranged at intervals of predetermined from the conveyance direction upstream of record sheet P in order of 62K (black), 62C (cyanogen), 62M (MAZENDA), and 62Y (yellow), and this recording head 62 is attached in the head electrode holder 63.

[0009] Drawing 13 is the plan which looked at the adsorption-power generating means 55 from the upper part. the direction in which the move direction of the conveyance belt 56, and the electrode board 64 and grounded plate 65 of the shape of a ctenidium which made each gear tooth with which the adsorption-power generating means 55 prepared in the conveyance belt 56 in drawing 13 consists of a conductive metal become independent cross at right angles -- alternation -- and it is continued and arranged in the record section of a recording head 62

[0010] Moreover, the sections 64a and 65a which exposed the pattern to the move direction both-sides edge of the conveyance belt 56 supplied electric power are electrically connected to the electrode board 64 and the grounded plate 65. As shown in drawing 12, the electric supply brushes 66 and 67 used as an electric supply means by which these sections 64a and 65a supplied electric power can be contacted are formed above the sections 64a and 65a supplied electric power, respectively. Positive or negative voltage is impressed to the electrode board 64 through the sections 64a and 65a in contact with these electric supply brushes 66 and 67 supplied electric power, and a grounded plate 65 is connected to a ground.

[0011] Drawing 14 is the A-A cross section of drawing 13, and is the cross section of the adsorption-power generating means 55 prepared in the conveyance belt 56. As shown in drawing 14, the adsorption-power generating means 55 is protected in the form sandwiched by base layer 56a by which the electrode board 64 and grounded plate 65 which consist of an electric conduction metal were constituted from synthetic resin, such as polyethylene and a polycarbonate, and surface 56b.

[0012] In the above-mentioned composition, the upper surface of the conveyance belt 56 is adsorbed by the adsorption-power generating means 55, and record sheet P is conveyed with the conveyance belt 56, being recorded by the recording head 62.

[0013] 68 is a cleaning-roller pair for removing the dirt adhering to the conveyance belt 56, and is compressed and prepared in the conveyance belt 56. 69 is an eccrisis roller and is driven on the turning effort of the drive roller 57 the means of communication which is not illustrated. 70 is a spur which carries out a pressure welding to the eccrisis roller 69, record sheet P after record is pinched by the eccrisis roller 69 and the spur 70, and eccrisis hold is carried out to the eccrisis tray 71. The spur 70 serves as the configuration where the nose of cam was able to be sharpened so that the ink of the picture recorded in order to \*\*\*\* the recording surface after record might not transfer.

[0014]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional example, the adsorption-power generating means 55 by the electrode of the shape of a ctenidium which becomes the conveyance belt 56 from the electrode board 64 and a grounded plate 65 is established. The satellite by ink and the ink regurgitation which flowed out of the recording head 62 accidentally in order to prepare in the conveyance direction both sides of the conveyance belt 56 where the sections 64a and 65a supplied electric power are exposed outside, and to supply electric power with the electric supply brushes 66 and 67, The ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc. tend to adhere to the sections 64a and 65a supplied electric power or the electric supply brushes 66 and 67, and there is a possibility that the electric supply by which contact to the sections 64a and 65a supplied electric power and the electric supply brushes 66 and 67 became unstable, and was stabilized in that case may become impossible.

[0015] Moreover, although the thing which prepared the protection member in the circumference of an electric supply means, and was made to isolate with the exterior was proposed, there was a possibility that the same problem might occur with ink, dust, etc. having adhered to the section exposed since it was not the composition that the circumference whole region of a conveyance belt is covered by the protection member supplied electric power, and having mentioned above.

[0016] The place which this invention solves the aforementioned technical problem and is made into the purpose The satellite by ink and the ink regurgitation which flowed out of the recording head accidentally by having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared, the recording device equipped with the sheet adsorption transport device and this which can perform electric supply by which could protect the whole section supplied electric power from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and contact for this section supplied electric power and an electric supply means was stabilized and stabilized -- it is going to provide -- it is a thing

[0017]

[Means for Solving the Problem] The sheet adsorption transport device concerning this invention for attaining the aforementioned purpose The conveyance belt which prepared the section to which it has the adsorption-power generating means which has arranged the electrode in order to carry out electrostatic adsorption of the record medium-ed, and the center section of this adsorption-power generating means is made into an adsorption-power generating field, and electric power is supplied by the move direction side edge section supplied electric power, In the sheet adsorption transport device which has an electric supply means for supplying electric power to this section supplied electric power It is characterized by covering the side edge section whole region of the aforementioned conveyance belt so that the aforementioned section supplied electric power may have predetermined space around by the aforementioned conveyance belt and the protection member installed by contacting or approaching and it may be isolated with the exterior.

[0018] The satellite by ink and the ink regurgitation which flowed out of the recording head accidentally by according to the above-mentioned composition having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared, The whole section supplied electric power can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact for this section supplied electric power and an electric supply means was stabilized and stabilized can be performed.

[0019] Moreover, it is desirable, if the aforementioned section supplied electric power is prepared in the move direction both sides or one side of the aforementioned conveyance belt and the aforementioned electric supply means is established to the section of each above supplied electric power.

[0020] Moreover, in having the closure member in which the aforementioned protection member contacts the aforementioned conveyance belt, and is prepared in the non-adsorbing field of the record medium-ed between the aforementioned adsorption-power generating field and the aforementioned section supplied electric power, it can perform still more certainly isolation with the exterior of the section supplied electric power by this closure member.

[0021] Moreover, since it is made to the composition which isolates with the exterior by the protection member and by which this electric supply means is also covered when the aforementioned electric supply means is installed in the aforementioned protection member, it is still more desirable.

[0022] moreover, the aforementioned protection -- the case where the cleaning member which contacts this conveyance belt at the move direction upstream of the aforementioned conveyance belt, and cleans the aforementioned section supplied electric power rather than the aforementioned electric

supply means of a member is installed -- this cleaning member -- the section supplied electric power -- it can clean -- cleaning -- since a protection member serves as the attaching member of a member, the attaching member of exclusive use is not needed, but part mark are cut down, and cost can be decreased

[0023] moreover, the aforementioned protection -- since friction generated between the conveyance belts and protection members which are pressed by this electric supply means is reduced by the friction reduction means when a friction reduction means is prepared in the aforementioned electric supply means and the position which counters through the aforementioned conveyance belt of a member, it is desirable

[0024] Moreover, when the aforementioned protection member is constituted possible [ attachment and detachment ] to the aforementioned conveyance belt, at the time of the work of jam processing of a record medium-ed, a maintenance, etc., a protection member is estranged from a conveyance belt and work can make it easy.

[0025] Moreover, the aforementioned protection member is installed in opening and closing or the jam processing door which carries out desorption at the time of jam processing of a record medium-ed. When are opened or desorbed from this jam processing door and it constitutes so that the aforementioned protection member may estrange from the aforementioned conveyance belt Since the parts which could be made to estrange a protection member from a conveyance belt by being opened or desorbed from a jam processing door, and were projected on the conveyance belt upper surface at the time of jam processing of a record medium-ed can be decreased, jam processing work can be performed easily.

[0026] Moreover, it is desirable when it has the ctenidium-like electrode which made each gear tooth with which the potential from which the aforementioned adsorption-power generating means prepared in the aforementioned conveyance belt is arranged by turns in the move direction of the aforementioned conveyance belt and the direction which intersects perpendicularly, and differs is impressed become independent.

[0027] Moreover, the aforementioned conveyance belt is desirable, when [ which has a drive roller and a follower roller ] it is passed by anchoring at the ends through with the conveyance roller of a lot at least and is laid with at least one pressurization roller.

[0028] Moreover, the recording device concerning this invention arranges a record means to have the aforementioned sheet adsorption transport device and to have the delivery which carries out the regurgitation of the flight drop of ink to the aforementioned conveyance belt in the position which counters, and is characterized by constituting so that an adsorption power may be generated to a record medium-ed in the record section of the aforementioned record means.

[0029] Moreover, the aforementioned record means is desirable when it is arranged so that the aforementioned delivery may be located in a line in the direction which are arranged in the move direction of the aforementioned conveyance belt, and intersects perpendicularly with the move direction of this conveyance belt. [ two or more ]

[0030] Moreover, it is desirable if it is the recording head of the full line type with which the aforementioned record means covered full [ of the record section of a record medium-ed ], and two or more record elements were arranged.

[0031] Moreover, it is desirable if it constitutes so that ink may be made to breathe out from a delivery using film boiling produced in ink with the heat energy to which the aforementioned record means is impressed with an electric thermal-conversion object.

[0032]

[Embodiments of the Invention] 1 operation gestalt at the time of applying to an ink-jet recording device as an example of the recording device equipped with the sheet adsorption transport device and this which start this invention with drawing is explained concretely. Cross-section explanatory

drawing showing the composition of the recording device equipped with the sheet adsorption transport device which drawing 1 requires for this invention, Cross-section explanatory drawing showing the composition of the 1st operation gestalt of the sheet adsorption transport device which drawing 2 requires for this invention, Flat-surface explanatory drawing showing the composition of an adsorption-power generating means by which drawing 3 was prepared in the conveyance belt of the 1st operation gestalt, Drawing and drawing 6 as which drawing 4 regarded the A-A cross section of drawing 3 and drawing 5 from [ of drawing 3 ] B The important section enlarged view of drawing 5 , Drawing and drawing 10 which show the composition of the 3rd operation gestalt of the sheet adsorption transport device which drawing and drawing 8 which show the composition of the 2nd operation gestalt of the sheet adsorption transport device which drawing 7 requires for this invention require for the important section enlarged view of drawing 7 , and drawing 9 requires for this invention are the important section enlarged view of drawing 9 .

[0033] In drawing 1 , the recording device 1 which equipped automatic-feeding equipment consists of the feed section 2, the conveyance section 3, the eccrisis section 4, and the Records Department 5.

[0034] First, the composition of the feed section 2 is explained. It is attached in the base 8, and a pressure plate 6 is a rotatable focusing on axis-of-rotation 8a combined with the base 8, and the pressure plate 6 loading record sheet P from which the feed section 2 serves as a record medium-ed which consisted of dielectric materials, such as paper and synthetic resin, and the feed body of revolution 7 which feeds with record sheet P are energized by the feed body of revolution 7 with the pressure plate spring 9.

[0035] The separation pad 10 which consists of the quality of the material with large coefficient of friction of the artificial hide which prevents \*\*\*\* of record sheet P is formed in the part of the feed body of revolution 7 and the pressure plate 6 which counters. Furthermore, the lily scum of which contact of the separation presser foot stitch tongue 11 for covering Mukai's corner on the other hand, and separating one record sheet P at a time, the pressure plate 6, and the feed body of revolution 7 of record sheet P is canceled and which is not illustrated is prepared in the base 8.

[0036] In the above-mentioned composition, lily scum is depressing the pressure plate 6 to the predetermined position in the state of standby. Thereby, contact of a pressure plate 6 and the feed body of revolution 7 is canceled. And if the driving force given to the conveyance roller 12 in this state is transmitted to the feed body of revolution 7 and lily scum by the gear etc., this lily scum will separate from a pressure plate 6, this pressure plate 6 goes up, the feed body of revolution 7 and record sheet P contact, record sheet P is taken up with rotation of this feed body of revolution 7, feed is started, one sheet dissociates at a time with the separation presser foot stitch tongue 11, and it is sent to the conveyance section 3.

[0037] It rotates until it sends record sheet P into the conveyance section 3, and the feed body of revolution 7 will be in the standby state of which the contact to record sheet P and the feed body of revolution 7 was canceled again, and the driving force from the conveyance roller 12 will be cut.

[0038] 13 \*\*\*\*, it is the feed body of revolution for feed, and feeds with record sheet P laid on the detachable tray 14 by the feed body of revolution 13 according to the record instruction signal of a computer, and conveys it to the conveyance roller 12.

[0039] Next, the composition of the conveyance section 3 is explained. The conveyance section 3 has the conveyance belt 15 which carries out electrostatic adsorption and conveys record sheet P, and PE (paper edge) sensor which is not illustrated. The conveyance belt 15 is driven with the drive roller 16, and it is laid with the pressurization roller 17 while being passed by anchoring at the ends through with the conveyance roller 12 which is a follower roller.

[0040] The conveyance roller 12 and the drive roller 16 are attached in the platen 18 which counters the recording heads 5K, 5C, 5M, and 5Y used as a record means possible [ rotation ], and the

pressurization roller 17 is attached in the other end of the arm 19 with which the end was attached in the platen 18 at the rockable possible [ rotation ]. And tension is given to the conveyance belt 15 by an arm 19 being pressed with a spring 20. Moreover, the platen 18 was located under the conveyance belt 15, and has achieved the duty holding this conveyance belt 15.

[0041] The pinch roller 21 which follows to the conveyance belt 15 is contacted and formed in the conveyance roller 12 and the position which counters. A pinch roller 21 leads record sheet P to the Records Department 5 by a pressure welding being carried out to the conveyance belt 15 with the spring which is not illustrated. Furthermore, the upper guide 22 and the lower guide 23 which guide record sheet P are prepared in the entrance of the conveyance section 3 where record sheet P is conveyed.

[0042] Moreover, PE sensor lever 24 transmitted to PE sensor which does not illustrate passage of the nose of cam of record sheet P and the back end is formed in the upper guide 22. Furthermore, the recording heads 5K, 5C, 5M, and 5Y used as a record means to form a picture based on image information are formed in the downstream in the conveyance direction of record sheet P of the conveyance roller 12.

[0043] Record sheet P sent to the conveyance section 3 in the above-mentioned composition is guided by the upper guide 22 and the lower guide 23, and is sent to the roller pair by the conveyance roller 12 and the pinch roller 21. At this time, the nose of cam of conveyed record sheet P is detected by PE sensor lever 24, and it is asking for the record position of record sheet P. Moreover, record sheet P is conveyed because the conveyance belt 15 rotates through the drive roller 16 by the conveyance motor 36.

[0044] As shown in drawing 2, the presser-foot roller 38 as a press means to press record sheet P to the conveyance belt 15 side is attached in the supporter material 37 which can rotate possible [ rotation ] to this supporter material 37 focusing on the axis of rotation of a pinch roller 21, and this presser-foot roller 38 is energized by the energization means which is not illustrated at the conveyance belt 15 side.

[0045] The follower roller 39 which follows to this conveyance belt 15 is formed in the position which counters the presser-foot roller 38 through the conveyance belt 15 possible [ rotation ] to the platen 18, and the duty with which the wear at the time of the inferior surface of tongue of this conveyance belt 15 and the upper surface of a platen 18 being worn by the conveyance belt 15 being caudad pressed with the presser-foot roller 38 and frictional force are reduced is achieved.

[0046] 40 is a cleaning-roller pair, and is compressed and prepared to the conveyance belt 15, it is possible to absorb ink, in order to remove dirt, such as ink adhering to the conveyance belt 15, and in order to prevent degradation in endurance, it is formed by the sponge of \*\*\*\* with the small pore diameter of 10 micrometers - about 30 micrometers. the conveyance belt 15 -- a cleaning-roller pair -- after being cleaned by 40, electricity is discharged with the electric discharge brush 41 which is an electric discharge means

[0047] Next, the composition of the Records Department 5 is explained. The recording heads 5K, 5C, 5M, and 5Y in this operation gestalt have the delivery (nozzle) which carries out the regurgitation of the flight drop of ink to the conveyance belt 15 in the position which counters. And more than one are arranged in the move direction of the conveyance belt 15, and it is arranged so that two or more nozzles may be located in a line in the move direction of this conveyance belt 15, and the direction which intersects perpendicularly. The ink-jet recording head of the full line type with which full [ of the record section of record sheet P ] was covered, and two or more record elements were arranged is used. It is arranged at intervals of predetermined from the conveyance direction upstream of record sheet P in order of 5K (black), 5C (cyanogen), 5M (MAZENDA), and 5Y (yellow), and these recording heads 5K, 5C, 5M, and 5Y are attached in the head electrode holder 25.

[0048] These recording heads 5K, 5C, 5M, and 5Y can give heat at a heater etc. to ink. And film boiling of the ink is carried out with this heat, ink is breathed out by the pressure variation produced by the growth or contraction of air bubbles by this film boiling from the nozzle of recording heads 5K, 5C, 5M, and 5Y, and a picture is formed on record sheet P of it.

[0049] That is, these recording heads 5K, 5C, 5M, and 5Y are equipped with an energy generation means to generate the drop formation energy made to act on the liquid in the energy operation section prepared in a detailed liquid delivery (orifice), a liquid route, and a part of this liquid route, and this operation section.

[0050] Irradiate the electromagnetic wave of the record method, laser, etc. using electric machine conversion objects, such as a piezo-electric element, as an energy generation means to generate such energy, it is made to generate heat, and there is the record method using an energy-generation means heat a liquid and make a liquid breathe out with electric thermal-conversion objects, such as a heater element which has the record method using an energy generation means to make a drop breathe out in the operation by this generation of heat, or an exoergic resistor, etc.

[0051] Since the recording head used for the ink-jet record method of making a liquid breathing out with heat energy also in it can arrange the liquid delivery (orifice) for breathing out the drop for record and forming a \*\*\*\*\* drop with high density, it can record high resolution.

[0052] The recording head which used an electric thermal-conversion object as an energy-generation means also in it is easy also for miniaturization, and the progress of technology and the improvement in reliability in the latest semiconductor field can utilize the advantage of remarkable IC technology or micro processing technology more than enough, and high-density-assembly-izing is easy for it, and it is advantageous from a manufacturing cost being cheap.

[0053] Moreover, although the ink-jet recording method was used as a record means with the operation gestalt mentioned above, it is still more desirable when growth of the foam produced in ink using film boiling produced in ink with the heat energy which energizes on an electric thermal-conversion object according to a record signal, and is impressed with the aforementioned electric thermal-conversion object, and contraction constitute so that it may record by breathing out ink from a delivery.

[0054] About the typical composition and typical principle, it is the U.S. \*\*\*\*\* , for example. A No. 4723129 specification, this \*\* What is performed using the fundamental principle currently indicated by the No. 4740796 specification is desirable.

[0055] Lobe 25a of the head electrode holder 25 and the rail 27 with which the end was fixed possible [ rotation ] with the shaft 26, and recording heads 5K, 5C, 5M, and 5Y were formed in the other end are engaged, and the clearance of each nozzle side of recording heads 5K, 5C, 5M, and 5Y and record sheet P is specified.

[0056] Next, the composition of the eccrisis section 4 is explained. The eccrisis section 4 is constituted by the eccrisis roller 28 and the spur 29, and record sheet P by which image formation was carried out at the Records Department 5 is pinched by the eccrisis roller 28 and the spur 29, is conveyed, and is discharged on the eccrisis tray 30.

[0057] Next, the composition of the adsorption-power generating means 31 prepared in the conveyance belt 15 using drawing 3 - drawing 6 is explained. The conveyance belt 15 is constituted from an endless belt configuration by the synthetic resin which has the thickness of 0.1mm - about 0.2mm, such as polyethylene and a polycarbonate.

[0058] The adsorption-power generating means 31 which has arranged the electrode is installed in the conveyance belt 15, and the center section of this adsorption-power generating means 31 is constituted as an adsorption-power generating field. The adsorption-power generating means 31 is arranged by turns in the move direction of the conveyance belt 15, and the direction which intersects

perpendicularly. It has composition which built in ctenidium-like the electrode board 32 and grounded plate 33 which consist of a conductive metal which made each gear tooth with which different potential is impressed become independent. The sections 32a and 33a which are electrically connected to this electrode board 32 and a grounded plate 33, and have a size longer than the width of face of each electrode board 32 and a grounded plate 33 in the move direction of the conveyance belt 15 supplied electric power are exposed and formed in the move direction both-sides edge of the conveyance belt 15.

[0059] The electric supply brushes 34 and 35 used as an electric supply means contact these sections 32a and 33a supplied electric power by the predetermined pressure, and are arranged possible [ electric supply ] at the upper part of the sections 32a and 33a supplied electric power, positive or negative voltage is impressed to the electrode board 32 through the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power from the high-voltage generator which is not illustrated, and a grounded plate 33 is connected to a ground. The voltage of 0.5kV - about 10kV is impressed to the electrode board 32, and the conveyance belt 15 is made to generate an electrostatic adsorption power with this operation gestalt at the Records Department 5 of the lower part of recording heads 5K, 5C, 5M, and 5Y. In addition, the electric supply brushes 34 and 35 are volume-resistivity 10-4-107. The electrical conducting material of omegacm is desirable.

[0060] With this operation gestalt, the change control means which control the electric supply to these electric supply brushes 34 and 35 and which are not illustrated are prepared among the high-voltage generator and the electric supply brushes 34 and 35 which are not illustrated.

[0061] As shown in drawing 4, the adsorption-power generating means 31 which consists of the electrode boards 32 and grounded plates 33 with which the conveyance belt 15 consists of an electric conduction metal is sandwiched by base layer 15a and surface 15b, is protected, it is formed, and base layer 15a and surface 15b are constituted by synthetic resin, such as polyethylene and a polycarbonate.

[0062] If voltage is impressed to the electrode board 32, an electrostatic force will occur in the direction of the arrow of drawing 4, and line of electric force will be formed. And an electrostatic adsorption power occurs in the upper part position of the conveyance belt 15 by the potential difference between the electrode board 32 and a grounded plate 33, and the charge (surface potential) of the voltage given to the electrode board 32 and like-pole nature occurs on the recording surface of record sheet P.

[0063] At this time, since not all the electric force generated with the electrode board 32 reaches a grounded plate 33, as for the adsorption power generated on an electrode, the direction on the electrode board 32 becomes strong from a grounded plate 33 top.

[0064] Thus, record sheet P conveyed by the feed body of revolution 7 is pinched on the conveyance belt 15 by the conveyance roller 12 and the pinch roller 21. A nose of cam presses down in the electrode board 32 top position, and is pressed with a roller 38 to the conveyance belt 15 side. The flat-surface section of the conveyance belt 15 is adsorbed by the adsorption-power generating means 31, and it is led to the Records Department 5. Being recorded by recording heads 5K, 5C, 5M, and 5Y, the conveyance belt 15 rotates with the drive roller 16 driven by the conveyance motor 36, and it is sent in drawing 1 and the direction of arrow a of drawing 2.

[0065] the both-sides edge whole region of the conveyance belt 15 which contains the sections 32a and 33a supplied electric power while the electric supply brushes 34 and 35 used as an electric supply means being supported by the supporter material 42, and contacting or approaching and installing this supporter material 42 with the conveyance belt 15, as shown in drawing 5 -- wrap protection -- it is attached in the member 43

[0066] It is formed in cross-section the configuration of C characters. namely, protection -- a member

43 so that the perimeter of the both-sides edge of this conveyance belt 15 may be surrounded in order to have predetermined space around, to isolate with the exterior and to protect the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 of the conveyance belt 15 In the non-adsorbing field of record sheet P between an adsorption-power generating field and the sections 32a and 33a supplied electric power according to the adsorption-power generating means 31 in the conveyance belt 15 side at the side edge perimeter of a member 43 protection -- the closure which consists of an elastomer of a low degree of hardness contacted and prepared by this conveyance belt 15 and the predetermined pressure -- the member 44 is formed

[0067] it is shown in drawing 6 -- as -- protection -- when the sections 32a and 33a supplied electric power are pressed with the electric supply brushes 34 and 35 by the predetermined pressure to a member 43, in order to ensure the junction, piece of support 43a which supports the conveyance belt 15 in the lower part is prepared, and in order to reduce the wear at the time of the inferior surface of tongue of the conveyance belt 15 and the upper surface of piece of support 43a being worn, and frictional force, heights 43b is formed in this

[0068] moreover, protection -- a friction reduction means 45 to have low coefficient of friction, such as fluoridization, is formed in the upper front face of heights 43b of piece of support 43a used as the electric supply brushes 34 and 35 and the position which counters through the conveyance belt 15 of a member 43

[0069] moreover, the cleaning which cleans the sections 32a and 33a supplied electric power in order to make good junction to the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 at the move direction upstream of the conveyance belt 15 of the electric supply brushes 34 and 35, as shown in drawing 2 -- a member 46 -- protection -- it is prepared in the member 43

[0070] thus, protection -- a member 43 and closure -- since it is protected so that the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 may have predetermined space around by the member 44 and it may isolate with the exterior -- from recording heads 5K, 5C, 5M, and 5Y -- mistaking -- an outflow -- the satellite according to ink or ink \*\*\* the bottom -- The sections 32a and 33a supplied electric power and the whole electric supply brushes 34 and 35 can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact to these sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 was stabilized and stabilized can be performed.

[0071] In right-hand side, the left-hand side of drawing 5 shows an equipment near side by the equipment back side. protection -- a member 43 is constituted possible [ attachment and detachment ] to the conveyance belt 15 -- having -- \*\*\* -- this protection -- a member 43 is attached in the chassis 47 which serves as a main part of equipment at an equipment back side (left-hand side of drawing 5 ), and is attached in the jam processing door 48 opened and closed to a chassis 47 in an equipment near side (right-hand side of drawing 5 ) at the time of jam processing of record sheet P

[0072] when it is attached in the chassis 47 possible [ rotation ] focusing on the pivot 49 and the jam of record sheet P is generated, the jam processing door 48 gathers handle 48a, and rotates the jam processing door 48 focusing on a pivot 49 -- making -- opening -- the bottom -- the time -- protection -- junction in the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power is canceled at the same time a member 43 estranges from the conveyance belt 15 Thereby, jam processing of record sheet P which carried out the jam on the conveyance belt 15 upper surface can be performed easily.

[0073] moreover, the thing for which it is made to rotate focusing on a pivot 49, and after jam processing of record sheet P closes the jam processing door 48 -- protection -- a member 43 -- again --

the side edge section of the conveyance belt 15 -- covering -- closure -- a member 44 joins to the conveyance belt 15, and the electric supply brushes 34 and 35 are joined to the sections 32a and 33a supplied electric power

[0074] In addition, although an example at the time of rotating focusing on a pivot 49 and constituting the jam processing door 48 from an aforementioned operation form possible [ opening and closing ] was explained A member 43 is installed. as other composition -- the main part of equipment -- receiving -- the jam processing door in which desorption is possible -- protection -- the time of being desorbed from the main part of equipment from this jam processing door -- protection -- while a member 43 estranges from the conveyance belt 15 -- protection -- you may constitute so that the electric supply brushes 34 and 35 installed in the member 43 may estrange from the sections 32a and 33a supplied electric power

[0075] According to the above-mentioned composition, since the conveyance belt 15 which carries out adsorption maintenance of the record sheet P does not have recording heads 5K, 5C, and 5M and the portion which protrudes at the 5Y side at the time of record of the nose of cam of record sheet P, and a back end portion, the projection nozzle of the endmost part of recording heads 5K, 5C, 5M, and 5Y and the edge of record sheet P can be recorded approaching, and an accurate record picture is acquired.

[0076] Moreover, when ink is breathed out so much by record sheet P, record sheet P swells and flapping (cock ring) occurs. Since the conveyance belt 15 side is adsorbed by the adsorption power of the adsorption-power generating means 31 also in this case and the recording heads 5K, 5C, and 5M of record sheet P and the float by the side of 5Y are lost, record sheet P does not have contact of these recording heads 5K, 5C, 5M, and 5Y and record sheet P, and it can perform stable record.

[0077] Moreover, the edge of record sheet P lenticulates by change of environment, such as temperature and humidity, or even when it is in the state which curl generated, it presses down, record sheet P is forced on the conveyance belt 15 side with a roller 38, and since it can convey to the adsorption-power generating section where flapping and curl are removed, adsorption stabilized at the Records Department 5 can be performed.

[0078] Moreover, although the electric supply brushes 34 and 35 were used for giving a charge to the adsorption-power generating means 31 as an electric supply means with this operation gestalt, it is good also as a non-contact formula by sheet metal, such as stainless steel (SUS) with the configuration where it sharpened at a contact process and a nose of cam with a roller as other electric supply meanses.

[0079] As shown in drawing 3, mark 15c used as an encoder is prepared in the both-ends front face of the conveyance belt 15 in the predetermined pitch, and this pitch can apply 1/180 (1/180 inch), 1/360 (1/360 inch), etc.

[0080] The counted value for counting mark 15c by the detection means which the signal from the sensor which is not illustrated does not illustrate, being integrated, and making a position stop record sheet P is set up beforehand. And when predetermined counted value is reached, it is made to stop the drive of the conveyance belt 15.

[0081] In addition, if mark 15c should just presuppose that it is black and can be discriminated when the conveyance belt 15 is black and white and the conveyance belt 15 are white, the combination of other colors is possible for it. Moreover, the quality of the material of mark 15c will not be limited especially if it adheres to the front face of the conveyance belt 15 certainly. Moreover, mark 15c is prepared in the inferior surface of tongue (rear face) of the conveyance belt 15, and you may make it read on the inferior surface of tongue (rear face). Moreover, what formed the hole instead of the mark made to adhere to the conveyance belt 15 in the predetermined pitch at the conveyance belt 15 is sufficient as mark 15c.

[0082] Next, the 2nd operation gestalt of the sheet adsorption transport device which starts this invention using drawing 7 and drawing 8 is explained. In addition, what was constituted like the aforementioned 1st operation gestalt attaches the same sign, and omits explanation.

[0083] the electric-supply brushes 34 and 35 which form the sections 32a and 33a electrically connected to the electrode board 32 and grounded plate 33 of the conveyance belt 15 used as the adsorption-power generating means 31 supplied electric power with this operation gestalt in the inferior surface of tongue (rear face) of this conveyance belt 15 as shown in drawing 7 and drawing 8, and can contact these sections 32a and 33a supplied electric power -- the inferior-surface-of-tongue (rear face) side of the conveyance belt 15 -- protection -- it is installed in the member 43

[0084] protection -- lobe 43c is prepared in the position where the electric supply brushes 34 and 35 counter the upper surface side of the conveyance belt 15 of a member 43 through this conveyance belt 15, and heights 43b is formed in the soffit section of this lobe 43c And the friction reduction means 45 for reducing the wear at the time of the upper surface of the conveyance belt 15 and the inferior surface of tongue of heights 43b being worn and frictional force is formed in the inferior-surface-of-tongue side of heights 43b.

[0085] According to the above-mentioned composition, the component part by the side of the upper surface of the conveyance belt 15 decreases, and jam processing of record sheet P can be performed still more easily. Other composition is constituted like the aforementioned 1st operation gestalt, and can acquire the same effect.

[0086] Next, the 3rd operation gestalt of the sheet adsorption transport device which starts this invention using drawing 9 and drawing 10 is explained. In addition, what was constituted like each aforementioned operation gestalt attaches the same sign, and omits explanation.

[0087] the electric supply brushes 34 and 35 with which the sections 32a and 33a electrically connected to the electrode board 32 and grounded plate 33 used as the adsorption-power generating means 31 with this operation gestalt supplied electric power are installed in move direction one side of the conveyance belt 15 side by side, contact these sections 32a and 33a supplied electric power, and can supply electric power -- protection -- it is installed in move direction one side of the conveyance belt 15 of a member 43 side by side

[0088] protection -- in order that piece of support 43a which supports the inferior surface of tongue of the conveyance belt 15 of a member 43 may have made [ many ] the amount of protrusions and may make good junction in the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power, two heights 43b is installed in the upper surface of this piece of support 43a side by side, and the friction reduction means 45 is formed in the upper surface of this heights 43b

[0089] According to the above-mentioned composition, by the back side of equipment The pump of the ink supply means to recording heads 5K, 5C, 5M, and 5Y, or a recovery means, When a pipe, a tube, etc. cannot arrange in space, are advantageous. furthermore, protection -- a member 43 can be managed with elegance in part, the mechanism which supports the supporter material 42 of the electric supply brushes 34 and 35 serves as easy composition only at one side of the conveyance belt 15, and leading about of the electrical cable to the electric supply brushes 34 and 35 also serves as easy composition Moreover, the jam processing work of record sheet P is also easy.

[0090] In addition, as a gestalt of an ink-jet recording device mentioned above, although used as equipment in the picture outgoing end end of information management systems, such as a computer, you may take the gestalt of the reproducing unit combined with others, the reader, etc., and the facsimile apparatus which has a transceiver function further.

[0091] Moreover, although the example using the ink-jet recording method as a record means was explained, this invention does not need to limit a recording method to an ink-jet recording method, and even if they are otherwise impact recording methods, such as a thermal imprint recording method,

and thermal recording, a wire dot recording method, or the other recording method, it can apply it. Moreover, it is not necessary to limit to a line recording method, and the so-called serial recording method may be used.

[0092]

[Effect of the Invention] The satellite by ink and the ink regurgitation which flowed out of the recording head accidentally by having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared since this invention had the composition and the operation like \*\*\*\*, The whole section supplied electric power can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact for this section supplied electric power and an electric supply means was stabilized and stabilized can be performed.

[0093] Moreover, since it is made to the composition which isolates with the exterior by the protection member and by which an electric supply means is also covered when the electric supply means is installed in the protection member, it is still more desirable.

[0094] Moreover, a protection member is installed in opening and closing or the jam processing door which carries out desorption at the time of jam processing of a record medium-ed. When are opened or desorbed from this jam processing door and it constitutes so that this protection member may estrange from a conveyance belt Since the parts which could be made to estrange a protection member from a conveyance belt by being opened or desorbed from a jam processing door, and were projected on the conveyance belt upper surface at the time of jam processing of a record medium-ed can be decreased, the jam processing work of a record medium-ed can be performed easily.

[0095] moreover, protection -- the case where the cleaning member which contacts this conveyance belt at the move direction upstream of a conveyance belt, and cleans the section supplied electric power rather than the electric supply means of a member is installed -- this cleaning member -- the section supplied electric power -- it can clean -- a protection member -- cleaning -- since it serves as the attaching member of a member, the attaching member of exclusive use is unnecessary, part mark can be cut down and cost can be decreased

[0096] moreover, protection -- since the wear at the time of a conveyance belt and heights being worn and frictional force can be reduced while being able to ensure contact in an electric supply means and the section supplied electric power, when a friction reduction means is prepared in the position which prepares heights in an electric supply means and the position which counters through the conveyance belt of a member, and contacts the conveyance belt of these heights, reliability excels to endurance highly

[0097] Moreover, in having the closure member in which a protection member contacts a conveyance belt and is prepared in the non-adsorbing field of the record medium-ed between an adsorption-power generating field and the section supplied electric power, it can perform still more certainly isolation with the exterior of the section supplied electric power by this closure member.

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TECHNICAL FIELD

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[The technical field to which invention belongs] this invention relates to the sheet adsorption transport device which carries out electrostatic adsorption and conveys the record medium-ed with which the recording device which equips the sheet adsorption transport device and this which used the conveyance belt is started, especially a picture is recorded by the recording head in an ink-jet recording device.

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## PRIOR ART

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[Description of the Prior Art] Generally an ink-jet recording device records on record media-ed, such as paper and synthetic resin, by breathing out ink from a recording head. miniaturization of a recording head is easy and it is easy for a high definition picture to be recordable at high speed, and for there to be little noise and to record a color picture moreover using multicolor ink, since a running cost is cheap and it is a non impact method -- etc. -- it has the advantage and much more improvement in the speed of record is possible for especially the full line type equipment that used the recording head of the line type which arranged many deliveries crosswise [ of a record medium-ed ]

[0003] However, since the distance from the recording head of the best style side position to the recording head of the lowest style side position becomes long in full line type equipment, the relief of a record medium-ed occurs in a record section, and since a record picture is confused or it also becomes the cause of a jam etc., it is necessary to energize below so that a record medium-ed may not come floating. A conductive electrode is prepared as the energization means, a charge is given to this, an electrostatic force is generated, and the method of making the record medium-ed which consists of a dielectric adsorb is learned.

[0004] In such an ink-jet recording device, by the electrostatic adsorption member prepared in the conveyance belt in the record section of a recording head, it sticks to this conveyance belt upper surface, and the record medium-ed with which it was fed by the feeding device is held on it, and it is conveyed with a conveyance belt, being recorded by the recording head.

[0005] An example of the conventional ink-jet recording device is explained using drawing 11 - drawing 14. In drawing 11, record sheet P which is a record medium-ed is loaded into the feed section 51, and it is fed with it one sheet at a time from the upper part with the feed roller 52.

[0006] Adsorption pinching is carried out on the conveyance belt 56 which has an adsorption-power generating means 55 to mention later by the follower roller 53 and the pinch roller 54, and record sheet P with which it was fed is conveyed to the record starting position on a platen 58 with the conveyance belt 56 conveyed with the drive roller 57 which drives a stepping motor as a driving source.

[0007] The conveyance belt 56 is laid with the drive roller 57, the follower roller 53, and the pressure roller 59, the pressure roller 59 was formed in the other end of the arm 60 with which the end was prepared in the platen 58 at the rockable possible [ rotation ], and tension is given to the conveyance belt 56 by this arm 60 being pressed with a spring 61.

[0008] 62 is the recording head of the full line type with which full [ of the record section of record sheet P ] was covered, and two or more record elements were arranged, it is arranged at intervals of predetermined from the conveyance direction upstream of record sheet P in order of 62K (black), 62C (cyanogen), 62M (MAZENDA), and 62Y (yellow), and this recording head 62 is attached in the head electrode holder 63.

[0009] Drawing 13 is the plan which looked at the adsorption-power generating means 55 from the

upper part. the direction in which the move direction of the conveyance belt 56, and the electrode board 64 and grounded plate 65 of the shape of a ctenidium which made each gear tooth with which the adsorption-power generating means 55 prepared in the conveyance belt 56 in drawing 13 consists of a conductive metal become independent cross at right angles -- alternation -- and it is continued and arranged in the record section of a recording head 62

[0010] Moreover, the sections 64a and 65a which exposed the pattern to the move direction both-sides edge of the conveyance belt 56 supplied electric power are electrically connected to the electrode board 64 and the grounded plate 65, and be shown in drawing 12. The electric supply brushes 66 and 67 used as an electric supply means by which these sections 64a and 65a supplied electric power can be contacted are formed above the sections 64a and 65a supplied electric power, respectively, positive or negative voltage is impressed to the electrode board 64 through the sections 64a and 65a in contact with these electric supply brushes 66 and 67 supplied electric power, and a grounded plate 65 is connected to a ground.

[0011] Drawing 14 is the A-A cross section of drawing 13, and is the cross section of the adsorption-power generating means 55 prepared in the conveyance belt 56. As shown in drawing 14, the adsorption-power generating means 55 is protected in the form sandwiched by base layer 56a by which the electrode board 64 and grounded plate 65 which consist of an electric conduction metal were constituted from synthetic resin, such as polyethylene and a polycarbonate, and surface 56b.

[0012] In the above-mentioned composition, the upper surface of the conveyance belt 56 is adsorbed by the adsorption-power generating means 55, and record sheet P is conveyed with the conveyance belt 56, being recorded by the recording head 62.

[0013] 68 is a cleaning-roller pair for removing the dirt adhering to the conveyance belt 56, and is compressed and prepared in the conveyance belt 56. 69 is an eccrisis roller and is driven on the turning effort of the drive roller 57 the means of communication which is not illustrated. 70 is a spur which carries out a pressure welding to the eccrisis roller 69, record sheet P after record is pinched by the eccrisis roller 69 and the spur 70, and eccrisis hold is carried out to the eccrisis tray 71. The spur 70 serves as the configuration where the nose of cam was able to be sharpened so that the ink of the picture recorded in order to \*\*\* the recording surface after record might not transfer.

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## EFFECT OF THE INVENTION

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[Effect of the Invention] In this invention, it has the composition and the operation like \*\*\*\*. Therefore, the satellite by ink and ink \*\*\*\* which flowed out of the recording head accidentally by having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared, The whole section supplied electric power can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact for this section supplied electric power and an electric supply means was stabilized and stabilized can be performed.

[0093] Moreover, since it is made to the composition which isolates with the exterior by the protection member and by which an electric supply means is also covered when the electric supply means is installed in the protection member, it is still more desirable.

[0094] Moreover, when a protection member is installed in opening and closing or the jam processing door which carries out desorption at the time of jam processing of a record medium-ed and is opened or desorbed from this jam processing door, this protection member estranges from a conveyance belt. Since the parts which could be made to estrange a protection member from a conveyance belt by being opened or desorbed from a jam processing door, and were projected on the conveyance belt upper surface at the time of jam processing of a record medium-ed can be decreased when constituted, the jam processing work of a record medium-ed can be performed easily.

[0095] moreover, protection -- the case where the cleaning member which contacts this conveyance belt at the move direction upstream of a conveyance belt, and cleans the section supplied electric power rather than the electric supply means of a member is installed -- this cleaning member -- the section supplied electric power -- it can clean -- a protection member -- cleaning -- since it serves as the attaching member of a member, the attaching member of exclusive use is unnecessary, part mark can be cut down and cost can be decreased

[0096] moreover, protection -- since the wear at the time of a conveyance belt and heights being worn and frictional force can be reduced while being able to ensure contact in an electric supply means and the section supplied electric power, when a friction reduction means is prepared in the position which prepares heights in an electric supply means and the position which counters through the conveyance belt of a member, and contacts the conveyance belt of these heights, reliability excels to endurance highly

[0097] Moreover, in having the closure member in which a protection member contacts a conveyance belt and is prepared in the non-adsorbing field of the record medium-ed between an adsorption-power generating field and the section supplied electric power, it can perform still more certainly isolation with the exterior of the section supplied electric power by this closure member.

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional example, the adsorption-power generating means 55 by the electrode of the shape of a ctenidium which becomes the conveyance belt 56 from the electrode board 64 and a grounded plate 65 is established. The satellite by ink and ink \*\*\*\* which flowed out of the recording head 62 accidentally in order to prepare in the conveyance direction both sides of the conveyance belt 56 where the sections 64a and 65a supplied electric power are exposed outside, and to supply electric power with the electric supply brushes 66 and 67, The ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc. tend to adhere to the sections 64a and 65a supplied electric power or the electric supply brushes 66 and 67, and there is a possibility that the electric supply by which contact to the sections 64a and 65a supplied electric power and the electric supply brushes 66 and 67 became unstable, and was stabilized in that case may become impossible.

[0015] Moreover, although the thing which prepared the protection member in the circumference of an electric supply means, and was made to isolate with the exterior was proposed, there was a possibility that the same problem might occur with ink, dust, etc. having adhered to the section exposed since it was not the composition that the circumference whole region of a conveyance belt is covered by the protection member supplied electric power, and having mentioned above.

[0016] The place which this invention solves the aforementioned technical problem and is made into the purpose The satellite by ink and ink \*\*\*\* which flowed out of the recording head accidentally by having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared, the recording device equipped with the sheet adsorption transport device and this which can perform electric supply by which could protect the whole section supplied electric power from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and contact for this section supplied electric power and an electric supply means was stabilized and stabilized -- it is going to provide -- it is a thing

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## MEANS

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[Means for Solving the Problem] The sheet adsorption transport device concerning this invention for attaining the aforementioned purpose The conveyance belt which prepared the section to which it has the adsorption-power generating means which has arranged the electrode in order to carry out electrostatic adsorption of the record medium-ed, and the center section of this adsorption-power generating means is made into an adsorption-power generating field, and electric power is supplied by the move direction side edge section supplied electric power, In the sheet adsorption transport device which has an electric supply means for supplying electric power to this section supplied electric power It is characterized by covering the side edge section whole region of the aforementioned conveyance belt so that the aforementioned section supplied electric power may have predetermined space around by the aforementioned conveyance belt and the protection member installed by contacting or approaching and it may be isolated with the exterior.

[0018] The satellite by ink and the ink regurgitation which flowed out of the recording head accidentally by according to the above-mentioned composition having isolated with the exterior by the protection member and having covered the side edge section whole region of a conveyance belt in which the section supplied electric power was prepared, The whole section supplied electric power can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact for this section supplied electric power and an electric supply means was stabilized and stabilized can be performed.

[0019] Moreover, it is desirable, if the aforementioned section supplied electric power is prepared in the move direction both sides or one side of the aforementioned conveyance belt and the aforementioned electric supply means is established to the section of each above supplied electric power.

[0020] Moreover, in having the closure member in which the aforementioned protection member contacts the aforementioned conveyance belt, and is prepared in the non-adsorbing field of the record medium-ed between the aforementioned adsorption-power generating field and the aforementioned section supplied electric power, it can perform still more certainly isolation with the exterior of the section supplied electric power by this closure member.

[0021] Moreover, since it is made to the composition which isolates with the exterior by the protection member and by which this electric supply means is also covered when the aforementioned electric supply means is installed in the aforementioned protection member, it is still more desirable.

[0022] moreover, the aforementioned protection -- the case where the cleaning member which contacts this conveyance belt at the move direction upstream of the aforementioned conveyance belt, and cleans the aforementioned section supplied electric power rather than the aforementioned electric supply means of a member is installed -- this cleaning member -- the section supplied electric power -- it can clean -- cleaning -- since a protection member serves as the attaching member of a member, the attaching member of exclusive use is not needed, but part mark are cut down, and cost can be

decreased

[0023] moreover, the aforementioned protection -- since friction generated between the conveyance belts and protection members which are pressed by this electric supply means is reduced by the friction reduction means when a friction reduction means is prepared in the aforementioned electric supply means and the position which counters through the aforementioned conveyance belt of a member, it is desirable

[0024] Moreover, when the aforementioned protection member is constituted possible [ attachment and detachment ] to the aforementioned conveyance belt, at the time of the work of jam processing of a record medium-ed, a maintenance, etc., a protection member is estranged from a conveyance belt and work can make it easy.

[0025] Moreover, the aforementioned protection member is installed in opening and closing or the jam processing door which carries out desorption at the time of jam processing of a record medium-ed. When are opened or desorbed from this jam processing door and it constitutes so that the aforementioned protection member may estrange from the aforementioned conveyance belt Since the parts which could be made to estrange a protection member from a conveyance belt by being opened or desorbed from a jam processing door, and were projected on the conveyance belt upper surface at the time of jam processing of a record medium-ed can be decreased, jam processing work can be performed easily.

[0026] Moreover, it is desirable when it has the ctenidium-like electrode which made each gear tooth with which the potential from which the aforementioned adsorption-power generating means prepared in the aforementioned conveyance belt is arranged by turns in the move direction of the aforementioned conveyance belt and the direction which intersects perpendicularly, and differs is impressed become independent.

[0027] Moreover, the aforementioned conveyance belt is desirable, when [ which has a drive roller and a follower roller ] it is passed by anchoring at the ends through with the conveyance roller of a lot at least and is laid with at least one pressurization roller.

[0028] Moreover, the recording device concerning this invention arranges a record means to have the aforementioned sheet adsorption transport device and to have the delivery which carries out the regurgitation of the flight drop of ink to the aforementioned conveyance belt in the position which counters, and is characterized by constituting so that an adsorption power may be generated to a record medium-ed in the record section of the aforementioned record means.

[0029] Moreover, the aforementioned record means is desirable when it is arranged so that the aforementioned delivery may be located in a line in the direction which are arranged in the move direction of the aforementioned conveyance belt, and intersects perpendicularly with the move direction of this conveyance belt. [ two or more ]

[0030] Moreover, it is desirable if it is the recording head of the full line type with which the aforementioned record means covered full [ of the record section of a record medium-ed ], and two or more record elements were arranged.

[0031] Moreover, it is desirable if it constitutes so that ink may be made to breathe out from a delivery using film boiling produced in ink with the heat energy to which the aforementioned record means is impressed with an electric thermal-conversion object.

[0032]

[Embodiments of the Invention] 1 operation gestalt at the time of applying to an ink-jet recording device as an example of the recording device equipped with the sheet adsorption transport device and this which start this invention with drawing is explained concretely. Cross-section explanatory drawing showing the composition of the recording device equipped with the sheet adsorption transport device which drawing 1 requires for this invention, Cross-section explanatory drawing showing the composition of the 1st operation gestalt of the sheet adsorption transport device which

drawing 2 requires for this invention, Flat-surface explanatory drawing showing the composition of an adsorption-power generating means by which drawing 3 was prepared in the conveyance belt of the 1st operation gestalt, Drawing and drawing 6 as which drawing 4 regarded the A-A cross section of drawing 3 and drawing 5 from [ of drawing 3 ] B The important section enlarged view of drawing 5 , Drawing and drawing 10 which show the composition of the 3rd operation gestalt of the sheet adsorption transport device which drawing and drawing 8 which show the composition of the 2nd operation gestalt of the sheet adsorption transport device which drawing 7 requires for this invention require for the important section enlarged view of drawing 7 , and drawing 9 requires for this invention are the important section enlarged view of drawing 9 .

[0033] In drawing 1 , the recording device 1 which equipped automatic-feeding equipment consists of the feed section 2, the conveyance section 3, the eccrisis section 4, and the Records Department 5.

[0034] First, the composition of the feed section 2 is explained. It is attached in the base 8, and a pressure plate 6 is a rotatable focusing on axis-of-rotation 8a combined with the base 8, and the pressure plate 6 loading record sheet P from which the feed section 2 serves as a record medium-ed which consisted of dielectric materials, such as paper and synthetic resin, and the feed body of revolution 7 which feeds with record sheet P are energized by the feed body of revolution 7 with the pressure plate spring 9.

[0035] The separation pad 10 which consists of the quality of the material with large coefficient of friction of the artificial hide which prevents \*\*\* of record sheet P is formed in the part of the feed body of revolution 7 and the pressure plate 6 which counters. Furthermore, the lily scum of which contact of the separation presser foot stitch tongue 11 for covering Mukai's corner on the other hand, and separating one record sheet P at a time, the pressure plate 6, and the feed body of revolution 7 of record sheet P is canceled and which is not illustrated is prepared in the base 8.

[0036] In the above-mentioned composition, lily scum is depressing the pressure plate 6 to the predetermined position in the state of standby. Thereby, contact of a pressure plate 6 and the feed body of revolution 7 is canceled. And if the driving force given to the conveyance roller 12 in this state is transmitted to the feed body of revolution 7 and lily scum by the gear etc., this lily scum will separate from a pressure plate 6, this pressure plate 6 goes up, the feed body of revolution 7 and record sheet P contact, record sheet P is taken up with rotation of this feed body of revolution 7, feed is started, one sheet dissociates at a time with the separation presser foot stitch tongue 11, and it is sent to the conveyance section 3.

[0037] It rotates until it sends record sheet P into the conveyance section 3, and the feed body of revolution 7 will be in the standby state of which the contact to record sheet P and the feed body of revolution 7 was canceled again, and the driving force from the conveyance roller 12 will be cut.

[0038] 13 \*\*\* , it is the feed body of revolution for feed, and feeds with record sheet P laid on the detachable tray 14 by the feed body of revolution 13 according to the record instruction signal of a computer, and conveys it to the conveyance roller 12.

[0039] Next, the composition of the conveyance section 3 is explained. The conveyance section 3 has the conveyance belt 15 which carries out electrostatic adsorption and conveys record sheet P, and PE (paper edge) sensor which is not illustrated. The conveyance belt 15 is driven with the drive roller 16, and it is laid with the pressurization roller 17 while being passed by anchoring at the ends through with the conveyance roller 12 which is a follower roller.

[0040] The conveyance roller 12 and the drive roller 16 are attached in the platen 18 which counters the recording heads 5K, 5C, 5M, and 5Y used as a record means possible [ rotation ], and the pressurization roller 17 is attached in the other end of the arm 19 with which the end was attached in the platen 18 at the rockable possible [ rotation ]. And tension is given to the conveyance belt 15 by an arm 19 being pressed with a spring 20. Moreover, the platen 18 was located under the conveyance belt

15, and has achieved the duty holding this conveyance belt 15.

[0041] The pinch roller 21 which follows to the conveyance belt 15 is contacted and formed in the conveyance roller 12 and the position which counters. A pinch roller 21 leads record sheet P to the Records Department 5 by a pressure welding being carried out to the conveyance belt 15 with the spring which is not illustrated. Furthermore, the upper guide 22 and the lower guide 23 which guide record sheet P are prepared in the entrance of the conveyance section 3 where record sheet P is conveyed.

[0042] Moreover, PE sensor lever 24 transmitted to PE sensor which does not illustrate passage of the nose of cam of record sheet P and the back end is formed in the upper guide 22. Furthermore, the recording heads 5K, 5C, 5M, and 5Y used as a record means to form a picture based on image information are formed in the downstream in the conveyance direction of record sheet P of the conveyance roller 12.

[0043] Record sheet P sent to the conveyance section 3 in the above-mentioned composition is guided by the upper guide 22 and the lower guide 23, and is sent to the roller pair by the conveyance roller 12 and the pinch roller 21. At this time, the nose of cam of conveyed record sheet P is detected by PE sensor lever 24, and it is asking for the record position of record sheet P. Moreover, record sheet P is conveyed because the conveyance belt 15 rotates through the drive roller 16 by the conveyance motor 36.

[0044] As shown in drawing 2, the presser-foot roller 38 as a press means to press record sheet P to the conveyance belt 15 side is attached in the supporter material 37 which can rotate possible [ rotation ] to this supporter material 37 focusing on the axis of rotation of a pinch roller 21, and this presser-foot roller 38 is energized by the energization means which is not illustrated at the conveyance belt 15 side.

[0045] The follower roller 39 which follows to this conveyance belt 15 is formed in the position which counters the presser-foot roller 38 through the conveyance belt 15 possible [ rotation ] to the platen 18, and the duty with which the wear at the time of the inferior surface of tongue of this conveyance belt 15 and the upper surface of a platen 18 being worn by the conveyance belt 15 being caudad pressed with the presser-foot roller 38 and frictional force are reduced is achieved.

[0046] 40 is a cleaning-roller pair, and is compressed and prepared to the conveyance belt 15, it is possible to absorb ink, in order to remove dirt, such as ink adhering to the conveyance belt 15, and in order to prevent degradation in endurance, it is formed by the sponge of \*\*\*\* with the small pore diameter of 10 micrometers - about 30 micrometers. the conveyance belt 15 -- a cleaning-roller pair -- after being cleaned by 40, electricity is discharged with the electric discharge brush 41 which is an electric discharge means

[0047] Next, the composition of the Records Department 5 is explained. The recording heads 5K, 5C, 5M, and 5Y in this operation gestalt have the delivery (nozzle) which carries out the regurgitation of the flight drop of ink to the conveyance belt 15 in the position which counters. And more than one are arranged in the move direction of the conveyance belt 15, and it is arranged so that two or more nozzles may be located in a line in the move direction of this conveyance belt 15, and the direction which intersects perpendicularly. The ink-jet recording head of the full line type with which full [ of the record section of record sheet P ] was covered, and two or more record elements were arranged is used. It is arranged at intervals of predetermined from the conveyance direction upstream of record sheet P in order of 5K (black), 5C (cyanogen), 5M (MAZENDA), and 5Y (yellow), and these recording heads 5K, 5C, 5M, and 5Y are attached in the head electrode holder 25.

[0048] These recording heads 5K, 5C, 5M, and 5Y can give heat at a heater etc. to ink. And film boiling of the ink is carried out with this heat, ink is breathed out by the pressure variation produced by the growth or contraction of a foam by this film boiling from the nozzle of recording heads 5K, 5C,

5M, and 5Y, and a picture is formed on record sheet P of it.

[0049] That is, these recording heads 5K, 5C, 5M, and 5Y are equipped with an energy generation means to generate the drop formation energy made to act on the liquid in the energy operation section prepared in a detailed liquid delivery (orifice), a liquid route, and a part of this liquid route, and this operation section.

[0050] Irradiate the electromagnetic wave of the record method, laser, etc. using electric machine conversion objects, such as a piezo-electric element, as an energy generation means generate such energy, it is made to generate heat, and there is the record method using an energy-generation means heat a liquid and make a liquid breathe out with electric thermal-conversion objects, such as a heater element which has the record method using an energy generation means to make a drop breathe out in the operation by this generation of heat, or an exoergic resistor, etc.

[0051] Since the recording head used for the ink-jet record method of making a liquid breathing out with heat energy also in it can arrange the liquid delivery (orifice) for breathing out the drop for record and forming the drop for regurgitation with high density, it can record high resolution.

[0052] The recording head which used an electric thermal-conversion object as an energy-generation means also in it is easy also for miniaturization, and the progress of technology and the improvement in reliability in the latest semiconductor field can utilize the advantage of remarkable IC technology or micro processing technology more than enough, and high-density-assembly-izing is easy for it, and it is advantageous from a manufacturing cost being cheap.

[0053] Moreover, although the ink-jet recording method was used as a record means with the operation gestalt mentioned above, it is still more desirable when growth of the foam produced in ink using film boiling produced in ink with the heat energy which energizes on an electric thermal-conversion object according to a record signal, and is impressed with the aforementioned electric thermal-conversion object, and contraction constitute so that it may record by breathing out ink from a delivery.

[0054] About the typical composition and typical principle, it is the U.S. \*\*\*\*\*\*, for example. A No. 4723129 specification, this \*\* What is performed using the fundamental principle currently indicated by the No. 4740796 specification is desirable.

[0055] Lobe 25a of the head electrode holder 25 and the rail 27 with which the end was fixed possible [ rotation ] with the shaft 26, and recording heads 5K, 5C, 5M, and 5Y were formed in the other end are engaged, and the clearance of each nozzle side of recording heads 5K, 5C, 5M, and 5Y and record sheet P is specified.

[0056] Next, the composition of the eccrisis section 4 is explained. The eccrisis section 4 is constituted by the eccrisis roller 28 and the spur 29, and record sheet P by which image formation was carried out at the Records Department 5 is pinched by the eccrisis roller 28 and the spur 29, is conveyed, and is discharged on the eccrisis tray 30.

[0057] Next, the composition of the adsorption-power generating means 31 prepared in the conveyance belt 15 using drawing 3 - drawing 6 is explained. The conveyance belt 15 is constituted from an endless belt configuration by the synthetic resin which has the thickness of 0.1mm - about 0.2mm, such as polyethylene and a polycarbonate.

[0058] The adsorption-power generating means 31 which has arranged the electrode is installed in the conveyance belt 15, and the center section of this adsorption-power generating means 31 is constituted as an adsorption-power generating field. The adsorption-power generating means 31 is arranged by turns in the move direction of the conveyance belt 15, and the direction which intersects perpendicularly. It has composition which built in ctenidium-like the electrode board 32 and grounded plate 33 which consist of a conductive metal which made each gear tooth with which different potential is impressed become independent. The sections 32a and 33a which are electrically connected

to this electrode board 32 and a grounded plate 33, and have a size longer than the width of face of each electrode board 32 and a grounded plate 33 in the move direction of the conveyance belt 15 supplied electric power are exposed and formed in the move direction both-sides edge of the conveyance belt 15.

[0059] The electric supply brushes 34 and 35 used as an electric supply means contact these sections 32a and 33a supplied electric power by the predetermined pressure, and are arranged possible [electric supply] at the upper part of the sections 32a and 33a supplied electric power, positive or negative voltage is impressed to the electrode board 32 through the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power from the high-voltage generator which is not illustrated, and a grounded plate 33 is connected to a ground. The voltage of 0.5kV - about 10kV is impressed to the electrode board 32, and the conveyance belt 15 is made to generate an electrostatic adsorption power with this operation gestalt at the Records Department 5 of the lower part of recording heads 5K, 5C, 5M, and 5Y. In addition, the electric supply brushes 34 and 35 are volume-resistivity 10-4-107. The electrical conducting material of omegacm is desirable.

[0060] With this operation gestalt, the change control means which control the electric supply to these electric supply brushes 34 and 35 and which are not illustrated are prepared among the high-voltage generator and the electric supply brushes 34 and 35 which are not illustrated.

[0061] As shown in drawing 4, the adsorption-power generating means 31 which consists of the electrode boards 32 and grounded plates 33 with which the conveyance belt 15 consists of an electric conduction metal is sandwiched by base layer 15a and surface 15b, is protected, it is formed, and base layer 15a and surface 15b are constituted by synthetic resin, such as polyethylene and a polycarbonate.

[0062] If voltage is impressed to the electrode board 32, an electrostatic force will occur in the direction of the arrow of drawing 4, and line of electric force will be formed. And an electrostatic adsorption power occurs in the upper part position of the conveyance belt 15 by the potential difference between the electrode board 32 and a grounded plate 33, and the charge (surface potential) of the voltage given to the electrode board 32 and like-pole nature occurs on the recording surface of record sheet P.

[0063] At this time, since not all the electric force generated with the electrode board 32 reaches a grounded plate 33, as for the adsorption power generated on an electrode, the direction on the electrode board 32 becomes strong from a grounded plate 33 top.

[0064] Thus, record sheet P conveyed by the feed body of revolution 7 is pinched on the conveyance belt 15 by the conveyance roller 12 and the pinch roller 21. A nose of cam presses down in the electrode board 32 top position, and is pressed with a roller 38 to the conveyance belt 15 side. The flat-surface section of the conveyance belt 15 is adsorbed by the adsorption-power generating means 31, and it is led to the Records Department 5. Being recorded by recording heads 5K, 5C, 5M, and 5Y, the conveyance belt 15 rotates with the drive roller 16 driven by the conveyance motor 36, and it is sent in drawing 1 and the direction of arrow a of drawing 2.

[0065] the both-sides edge whole region of the conveyance belt 15 which contains the sections 32a and 33a supplied electric power while the electric supply brushes 34 and 35 used as an electric supply means being supported by the supporter material 42, and contacting or approaching and installing this supporter material 42 with the conveyance belt 15, as shown in drawing 5 -- wrap protection -- it is attached in the member 43

[0066] It is formed in cross-section the configuration of C characters. namely, protection -- a member 43 so that the perimeter of the both-sides edge of this conveyance belt 15 may be surrounded in order to have predetermined space around, to isolate with the exterior and to protect the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 of the conveyance belt 15 In the

non-adsorbing field of record sheet P between an adsorption-power generating field and the sections 32a and 33a supplied electric power according to the adsorption-power generating means 31 in the conveyance belt 15 side at the side edge perimeter of a member 43 protection -- the closure which consists of an elastomer of a low degree of hardness contacted and prepared by this conveyance belt 15 and the predetermined pressure -- the member 44 is formed

[0067] it is shown in drawing 6 -- as -- protection -- when the sections 32a and 33a supplied electric power are pressed with the electric supply brushes 34 and 35 by the predetermined pressure to a member 43, in order to ensure the junction, piece of support 43a which supports the conveyance belt 15 in the lower part is prepared, and in order to reduce the wear at the time of the inferior surface of tongue of the conveyance belt 15 and the upper surface of piece of support 43a being worn, and frictional force, heights 43b is formed in this

[0068] moreover, protection -- a friction reduction means 45 to have low coefficient of friction, such as fluoridization, is formed in the upper front face of heights 43b of piece of support 43a used as the electric supply brushes 34 and 35 and the position which counters through the conveyance belt 15 of a member 43

[0069] moreover, the cleaning which cleans the sections 32a and 33a supplied electric power in order to make good junction to the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 at the move direction upstream of the conveyance belt 15 of the electric supply brushes 34 and 35, as shown in drawing 2 -- a member 46 -- protection -- it is prepared in the member 43

[0070] thus, protection -- a member 43 and closure -- since it is protected so that the sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 may have predetermined space around by the member 44 and it may isolate with the exterior -- from recording heads 5K, 5C, 5M, and 5Y -- mistaking -- an outflow -- the satellite according to ink or the ink regurgitation the bottom -- The sections 32a and 33a supplied electric power and the whole electric supply brushes 34 and 35 can be protected from the ink drop (ink Myst) of the shape of a fog which consists of a micro dot etc., dust, paper powder, etc., and electric supply by which contact to these sections 32a and 33a supplied electric power and the electric supply brushes 34 and 35 was stabilized and stabilized can be performed.

[0071] In right-hand side, the left-hand side of drawing 5 shows an equipment near side by the equipment back side. protection -- a member 43 is constituted possible [ attachment and detachment ] to the conveyance belt 15 -- having -- \*\*\* -- this protection -- a member 43 is attached in the chassis 47 which serves as a main part of equipment at an equipment back side (left-hand side of drawing 5 ), and is attached in the jam processing door 48 opened and closed to a chassis 47 in an equipment near side (right-hand side of drawing 5 ) at the time of jam processing of record sheet P

[0072] when it is attached in the chassis 47 possible [ rotation ] focusing on the pivot 49 and the jam of record sheet P is generated, the jam processing door 48 gathers handle 48a, and rotates the jam processing door 48 focusing on a pivot 49 -- making -- opening -- the bottom -- the time -- protection -- junction in the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power is canceled at the same time a member 43 estranges from the conveyance belt 15 Thereby, jam processing of record sheet P which carried out the jam on the conveyance belt 15 upper surface can be performed easily.

[0073] moreover, the thing for which it is made to rotate focusing on a pivot 49, and after jam processing of record sheet P closes the jam processing door 48 -- protection -- a member 43 -- again -- the side edge section of the conveyance belt 15 -- covering -- closure -- a member 44 joins to the conveyance belt 15, and the electric supply brushes 34 and 35 are joined to the sections 32a and 33a supplied electric power

[0074] In addition, although an example at the time of rotating focusing on a pivot 49 and constituting the jam processing door 48 from an aforementioned operation gestalt possible [ opening and closing ] was explained A member 43 is installed. as other composition -- the main part of equipment -- receiving -- the jam processing door in which desorption is possible -- protection -- the time of being desorbed from the main part of equipment from this jam processing door -- protection -- while a member 43 estranges from the conveyance belt 15 -- protection -- you may constitute so that the electric supply brushes 34 and 35 installed in the member 43 may estrange from the sections 32a and 33a supplied electric power

[0075] According to the above-mentioned composition, since the conveyance belt 15 which carries out adsorption maintenance of the record sheet P does not have recording heads 5K, 5C, and 5M and the portion which protrudes at the 5Y side at the time of record of the nose of cam of record sheet P, and a back end portion, the protrusion nozzle of the endmost part of recording heads 5K, 5C, 5M, and 5Y and the edge of record sheet P can be recorded approaching, and an accurate record picture is acquired.

[0076] Moreover, when ink is breathed out so much by record sheet P, record sheet P swells and flapping (cock ring) occurs. Since the conveyance belt 15 side is adsorbed by the adsorption power of the adsorption-power generating means 31 also in this case and the recording heads 5K, 5C, and 5M of record sheet P and the float by the side of 5Y are lost, record sheet P does not have contact of these recording heads 5K, 5C, 5M, and 5Y and record sheet P, and it can perform stable record.

[0077] Moreover, the edge of record sheet P lenticulates by change of environment, such as temperature and humidity, or even when it is in the state which curl generated, it presses down, record sheet P is forced on the conveyance belt 15 side with a roller 38, and since it can convey to the adsorption-power generating section where flapping and curl are removed, adsorption stabilized at the Records Department 5 can be performed.

[0078] Moreover, although the electric supply brushes 34 and 35 were used for giving a charge to the adsorption-power generating means 31 as an electric supply means with this operation gestalt, it is good also as a non-contact formula by sheet metal, such as stainless steel (SUS) with the configuration where it sharpened at a contact process and a nose of cam with a roller as other electric supply meanses.

[0079] As shown in drawing 3 , mark 15c used as an encoder is prepared in the both-ends front face of the conveyance belt 15 in the predetermined pitch, and this pitch can apply 1/180 (1/180 inch), 1/360 (1/360 inch), etc.

[0080] The counted value for counting mark 15c by the detection means which the signal from the sensor which is not illustrated does not illustrate, being integrated, and making a position stop record sheet P is set up beforehand. And when predetermined counted value is reached, it is made to stop the drive of the conveyance belt 15.

[0081] In addition, if mark 15c should just presuppose that it is black and can be discriminated when the conveyance belt 15 is black and white and the conveyance belt 15 are white, the combination of other colors is possible for it. Moreover, the quality of the material of mark 15c will not be limited especially if it adheres to the front face of the conveyance belt 15 certainly. Moreover, mark 15c is prepared in the undersurface (rear face) of the conveyance belt 15, and you may make it read on the undersurface (rear face). Moreover, what formed the hole instead of the mark made to adhere to the conveyance belt 15 in the predetermined pitch at the conveyance belt 15 is sufficient as mark 15c.

[0082] Next, the 2nd operation form of the sheet adsorption transport device which starts this invention using drawing 7 and drawing 8 is explained. In addition, what was constituted like the aforementioned 1st operation form attaches the same sign, and omits explanation.

[0083] the electric-supply brushes 34 and 35 which form the sections 32a and 33a electrically

connected to the electrode board 32 and grounded plate 33 of the conveyance belt 15 used as the adsorption-power generating means 31 supplied electric power in the undersurface (rear face) of this conveyance belt 15 with this operation form as shown in drawing 7 and drawing 8, and can contact these sections 32a and 33a supplied electric power -- the undersurface (rear face) side of the conveyance belt 15 -- protection -- it is installed in the member 43

[0084] protection -- lobe 43c is prepared in the position where the electric supply brushes 34 and 35 counter the upper surface side of the conveyance belt 15 of a member 43 through this conveyance belt 15, and heights 43b is formed in the soffit section of this lobe 43c And the friction reduction means 45 for reducing the wear at the time of the upper surface of the conveyance belt 15 and the undersurface of heights 43b being worn and frictional force is formed in the undersurface side of heights 43b.

[0085] According to the above-mentioned composition, the component part by the side of the upper surface of the conveyance belt 15 decreases, and jam processing of record sheet P can be performed still more easily. Other composition is constituted like the aforementioned 1st operation form, and can acquire the same effect.

[0086] Next, the 3rd operation form of the sheet adsorption transport device which starts this invention using drawing 9 and drawing 10 is explained. In addition, what was constituted like each aforementioned operation form attaches the same sign, and omits explanation.

[0087] the electric supply brushes 34 and 35 with which the sections 32a and 33a electrically connected to the electrode board 32 and grounded plate 33 used as the adsorption-power generating means 31 with this operation form supplied electric power are installed in move direction one side of the conveyance belt 15 side by side, contact these sections 32a and 33a supplied electric power, and can supply electric power -- protection -- it is installed in move direction one side of the conveyance belt 15 of a member 43 side by side

[0088] protection -- in order that piece of support 43a which supports the undersurface of the conveyance belt 15 of a member 43 may have made [ many ] the amount of projection and may make good junction in the electric supply brushes 34 and 35 and the sections 32a and 33a supplied electric power, two heights 43b is installed in the upper surface of this piece of support 43a side by side, and the friction reduction means 45 is formed in the upper surface of this heights 43b

[0089] According to the above-mentioned composition, by the back side of equipment The pump of the ink supply means to recording heads 5K, 5C, 5M, and 5Y, or a recovery means, When a pipe, a tube, etc. cannot arrange in space, are advantageous. furthermore, protection -- a member 43 can be managed with elegance in part, the mechanism which supports the supporter material 42 of the electric supply brushes 34 and 35 serves as easy composition only at one side of the conveyance belt 15, and leading about of the electrical cable to the electric supply brushes 34 and 35 also serves as easy composition Moreover, the jam processing work of record sheet P is also easy.

[0090] In addition, as a form of an ink-jet recording device mentioned above, although used as equipment in the picture outgoing end end of information management systems, such as a computer, you may take the form of the reproducing unit combined with others, the reader, etc., and the facsimile apparatus which has a transceiver function further.

[0091] Moreover, although the example using the ink-jet recording method as a record means was explained, this invention does not need to limit a recording method to an ink-jet recording method, and even if they are otherwise impact recording methods, such as a thermal imprint recording method, and thermal recording, a wire dot recording method, or the other recording method, it can apply it. Moreover, it is not necessary to limit to a line recording method, and the so-called serial recording method may be used.

[Translation done.]

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2. \*\*\*\* shows the word which can not be translated.
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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is cross-section explanatory drawing showing the composition of the recording device equipped with the sheet adsorption transport device concerning this invention.

[Drawing 2] It is cross-section explanatory drawing showing the composition of the 1st operation gestalt of the sheet adsorption transport device concerning this invention.

[Drawing 3] It is flat-surface explanatory drawing showing the composition of the adsorption-power generating means prepared in the conveyance belt of the 1st operation gestalt.

[Drawing 4] It is the A-A cross section of drawing 3 .

[Drawing 5] It is drawing seen from [ of drawing 3 ] B.

[Drawing 6] It is the important section enlarged view of drawing 5 .

[Drawing 7] It is drawing showing the composition of the 2nd operation gestalt of the sheet adsorption transport device concerning this invention.

[Drawing 8] It is the important section enlarged view of drawing 7 .

[Drawing 9] It is drawing showing the composition of the 3rd operation gestalt of the sheet adsorption transport device concerning this invention.

[Drawing 10] It is the important section enlarged view of drawing 9 .

[Drawing 11] It is drawing explaining the conventional example.

[Drawing 12] It is drawing explaining the conventional example.

[Drawing 13] It is drawing explaining the conventional example.

[Drawing 14] It is drawing explaining the conventional example.

### [Description of Notations]

1 [ -- The conveyance section, 4 / -- The eccrissis section, 5 / -- Records Department, ] -- A recording device, 2 -- The feed section, 3 5K, 5C, 5M, 5Y [ -- Feed body of revolution, ] -- A recording head, 6 -- A pressure plate, 7 8 [ -- A pressure plate spring, 10 / -- A separation pad, 11 / -- Separation presser foot stitch tongue, ] -- The base, 8a -- The axis of rotation, 9 12 [ -- A detachable tray, 15 / -- Conveyance belt, ] -- A conveyance roller, 13 -- Feed body of revolution, 14 15a [ -- A mark, 16 / -- Drive roller, ] -- A base layer, 15b -- A surface, 15c 17 [ -- An arm, 20 / -- A spring, 21 / -- Pinch roller, ] -- A pressurization roller, 18 -- A platen, 19 22 [ -- PE sensor lever, 25 / -- Head electrode holder, ] -- A top guide, 23 -- A bottom guide, 24 25a [ -- A rail, 28 / -- An eccrissis roller, 29 / -- Spur, ] -- A lobe, 26 -- A shaft, 27 30 [ -- An electrode board, 33 / -- Grounded plate, ] -- An eccrissis tray, 31 -- An adsorption-power generating means, 32 32a, 33a [ -- Conveyance motor, ] -- 34 The section supplied electric power, 35 -- An electric supply brush, 36 37 [ -- A follower roller, 40 / -- Cleaning-roller pair, ] -- Supporter material, 38 -- A presser-foot roller, 39 41 [ -- A protection member, 43a / -- The piece of support, 43b / -- Heights, 43c / -- A lobe, 44 / -- A closure member, 45 /

-- A friction reduction means, 46 / -- A cleaning member, 47 / -- A chassis, 48 / -- A jam processing door, 48a / -- A handle, 49 / -- A pivot, P / -- Record sheet ] -- An electric discharge brush, 42 -- Supporter material, 43

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[Translation done.]

\* NOTICES \*

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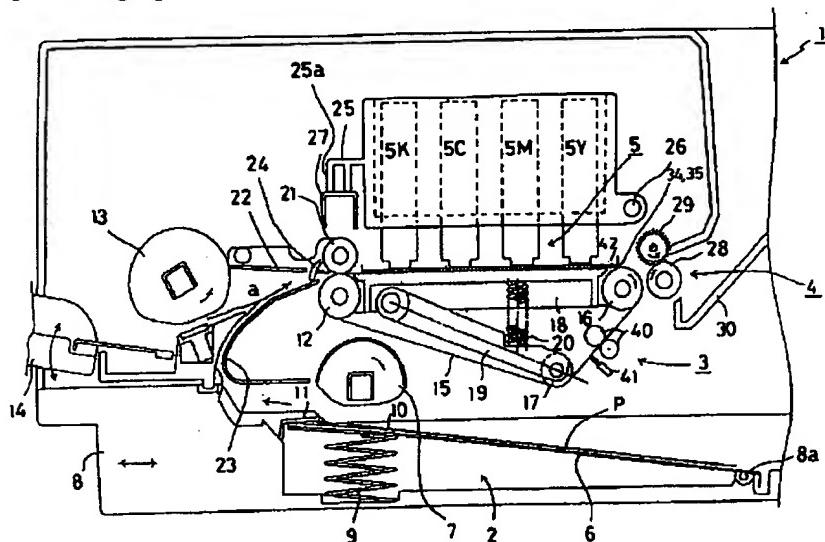
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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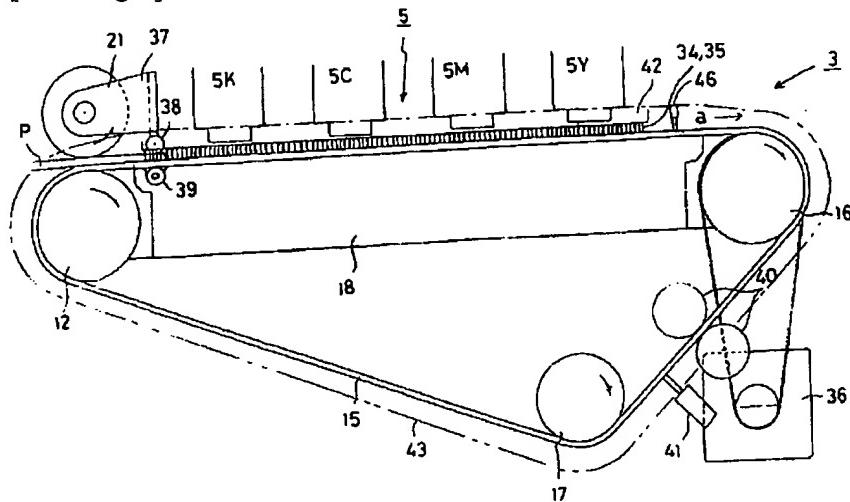
DRAWINGS

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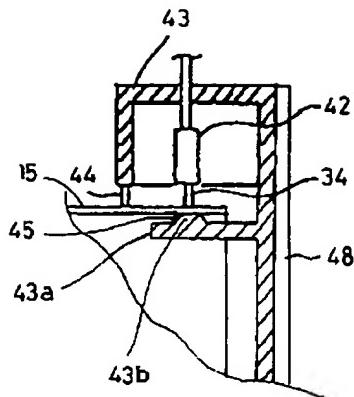
[Drawing 1]



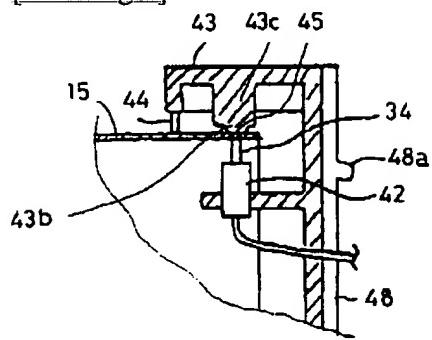
[Drawing 2]



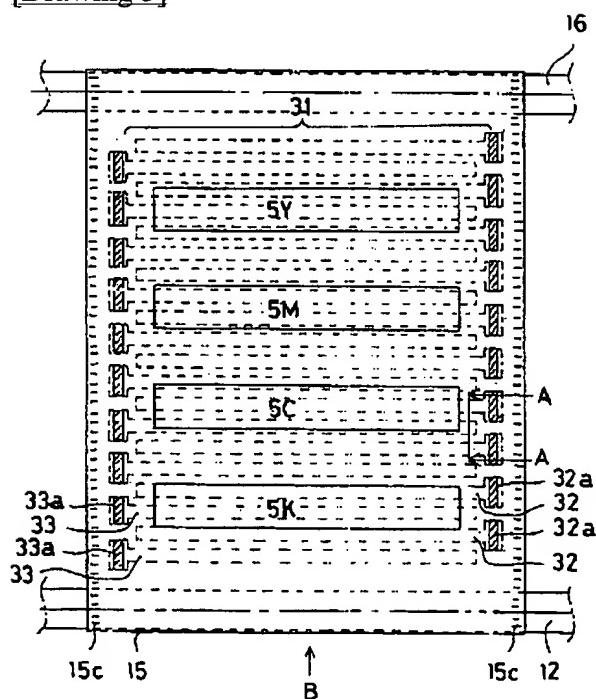
[Drawing 6]



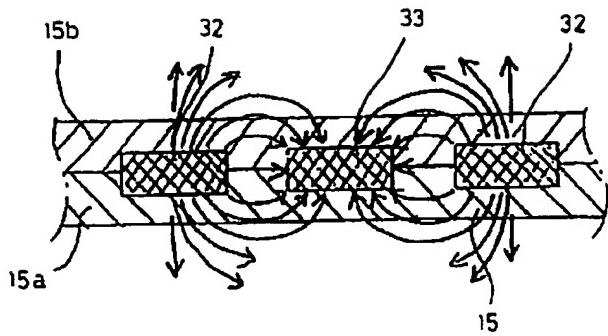
[Drawing 8]



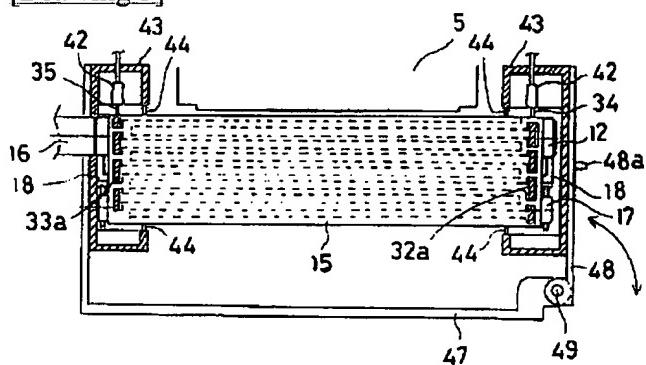
[Drawing 3]



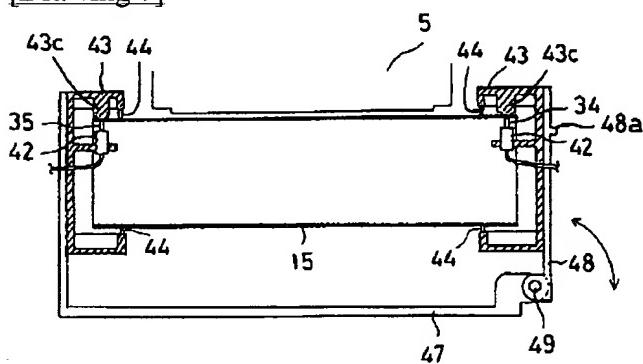
[Drawing 4]



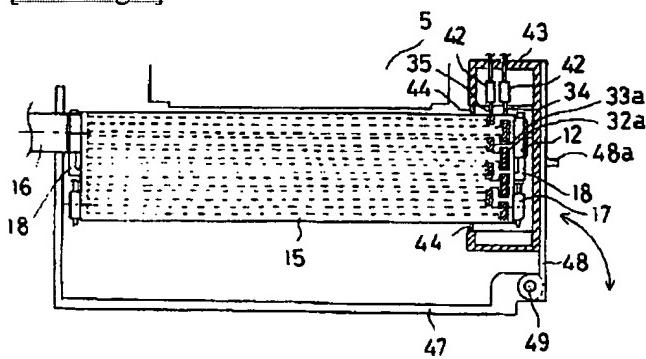
[Drawing 5]



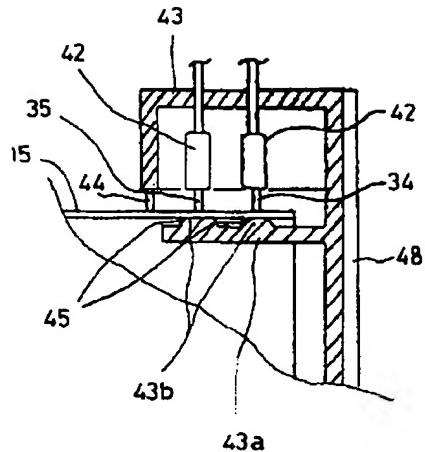
[Drawing 7]



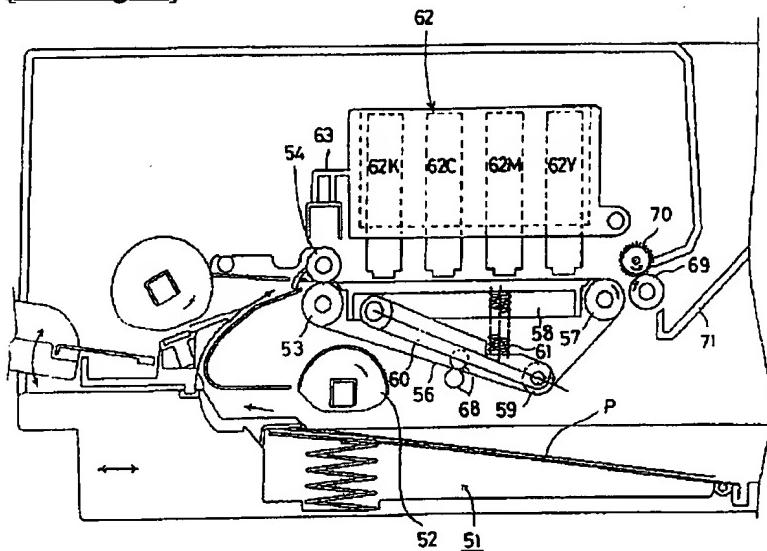
[Drawing 9]



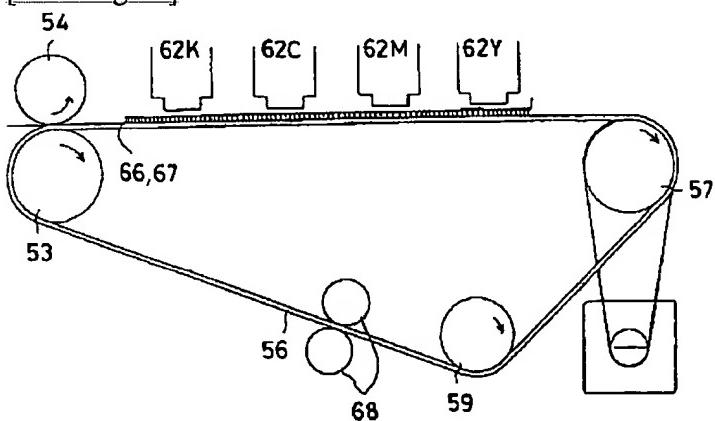
[Drawing 10]



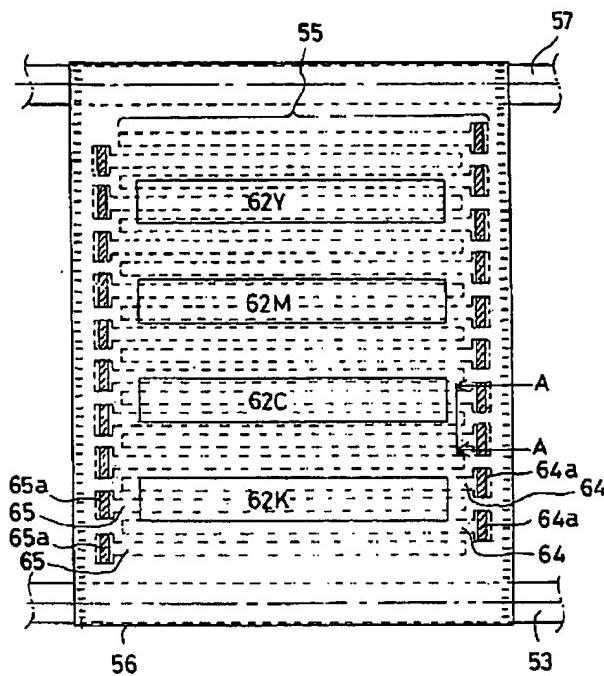
[Drawing 11]



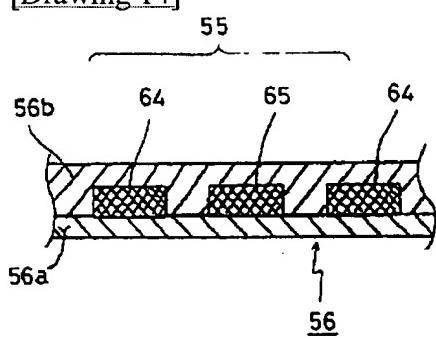
[Drawing 12]



[Drawing 13]



[Drawing 14]



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[Translation done.]